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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))

Attorney Docket No. 1273/16

First Inventor or Application Identifier Fobert et al.

Title A CLIENT-SERVER NETWORK FOR MANAGING ...

Express Mail Label No. EJ353687037US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☒ * Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
2. ☒ Specification [Total Pages 22]
(preferred arrangement set forth below)
 - Descriptive title of the Invention
 - Cross References to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to Microfiche Appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure
3. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets 11]
4. Oath or Declaration [Total Pages 4]
 - a. ☒ Newly executed (original or copy)
 - b. ☐ Copy from a prior application (37 C.F.R. § 1.63(d))
(for continuation/divisional with Box 16 completed)
 - i. ☐ DELETION OF INVENTOR(S)
Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).

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5. ☐ Microfiche Computer Program (Appendix)
6. Nucleotide and/or Amino Acid Sequence Submission
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ACCOMPANYING APPLICATION PARTS

7. ☒ Assignment Papers (cover sheet & document(s))
8. ☒ 37 C.F.R. § 3.73(b) Statement ☐ Power of Attorney
(when there is an assignee)
9. ☐ English Translation Document (if applicable)
10. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
11. ☐ Preliminary Amendment
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13. ☐ * Small Entity Statement filed in prior application
Statement(s) ☐ Status still proper and desired
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Re: U.S. Patent Application for A CLIENT-SERVER NETWORK FOR
MANAGING INTERNET PROTOCOL VOICE PACKETS
Our File No. 1273/16

Sir:

Please find enclosed the following:

1. A U.S. patent application for A CLIENT-SERVER NETWORK FOR
MANAGING INTERNET PROTOCOL VOICE PACKETS (22 pages of
specification);
2. A Utility Patent Application Transmittal Form (Form PTO/SB/05);
3. A Fee Transmittal Form (Form PTO/SB/17) (1 page, in duplicate);
4. Eleven (11) sheets of informal drawings;
5. Executed Declaration;
6. Executed Assignment and Recordation Cover Sheet;
7. A check in the amount of \$878.00 to cover the \$838.00 application filing fee
and \$40.00 Assignment recordation fee;

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December 17, 1999
Page 2

8. A return-receipt postcard to be returned to our offices with the U.S. Patent and Trademark Office date stamp thereon; and
9. A Certificate of Express Mail No.: EJ353687037US

Please contact our offices if there are any questions.

Respectfully submitted,

JENKINS & WILSON, P.A.



Jeffrey L. Wilson
Registration No. 36,058

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Lillian S. Glenn

A CLIENT-SERVER NETWORK FOR MANAGING
INTERNET PROTOCOL VOICE PACKETS

AN APPLICATION FOR
UNITED STATES LETTERS PATENT

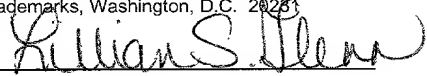
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Description

A CLIENT-SERVER NETWORK FOR MANAGING INTERNET PROTOCOL VOICE PACKETS

Technical Field

5 This invention relates generally to internet telephony, and more particularly to an internet telephony network for managing voice packet data.

Background Art

Internet Protocol (IP) telephony is the process of converting voice into data packets for transmission on a data network such as a Transmission Control Protocol/Internet Protocol (TCP/IP) or similar type network. The advantage of IP telephony over conventional, dedicated line telephone networks is that instead of relying on a physical telephone link and an associated telephone number identifying that physical link to establish a connection, an IP address directs the call to the appropriate IP device.

10

15 Moreover, although compatible with the existing Publicly Switched Telephone Network (PSTN) such that local IP telephony networks can receive calls from the PSTN accompanied by the proper conversion device, IP telephony takes advantage of existing data networks such that long distance telephone calls can be made over the internet without incurring long distance charges.

Accordingly, IP telephony, particularly in business applications, has become increasingly popular, and telephones have been expressly designed for use with internet protocol. Conventional telephones, with the assistance of a station gateway that converts the voice signals to data packets, can also communicate using internet protocol. Some IP telephone sets provide a small graphical display for the user's benefit, however, many do not. Therefore, the amount of information available to a user to identify the person calling before the user takes the call is very limited. Typical telephone appliance displays provide at most a telephone number of the calling party and identify on which line the incoming call is received. Moreover, the information available to a user (if any) with respect to the incoming call is extremely limited partially due to the reduced, even lack of, graphical display, but even more so due to the limited intelligence these IP telephony devices have, further limiting the type, amount and manner in which the information can be displayed.

Accordingly, because IP telephony is limited in the amount of information that can be conveyed to a user regarding a caller, management of calls, e.g. taking a call, sending a call to voice mail, and even ignoring a call, is not effectively accomplished. Indeed, even with caller ID readily available making it possible to determine who is calling or being sent to voice mail, there is no way to monitor the remotely located voice mail to listen to the message as it is being left by the caller.

Disclosure of the Invention

The present invention results from the realization that a truly effective client server IP network for managing voice packet data can be achieved in which a terminal proxy server, in response to an incoming IP telephone call, simultaneously sends synchronized signals to a client terminal and to a client terminal controller notifying a user of the incoming call. The client terminal controller, in response thereto, retrieves information about the incoming caller, displays the information for the user and through a graphical user interface responsive to the user, the client terminal controller performs at least one call management task on the incoming voice data packets.

This invention results from the further realization that a voice mail message can be monitored in real time and even interrupted as the message is being left by a caller by establishing a conference call with the voice mail storage device and the caller and dropping the voice mail storage device from the call should the user wish to answer the call.

The invention features a client-server network for managing IP voice data packets. There is a client terminal for receiving IP voice data packets from a caller and a graphical display for conveying information to a client terminal user. A client terminal controller controls the client terminal. A terminal proxy server, responsive to internet protocol control data packets, simultaneously sends synchronized signals to the client terminal and the client terminal controller to notify a client terminal user of the incoming voice data packets. The client terminal controller, in response the terminal proxy server, retrieves information about the incoming caller and conveys the information to the client

terminal user on the graphical display. A graphical user interface is provided for receiving instructions from the client terminal user. The client terminal controller, in response to the instructions received from the user through the graphical user interface, performs at least one call management task on the
5 incoming voice data packets.

The client-server network can include a database from which the client terminal controller retrieves the information. The database can include an address book database or the database can include a Lightweight Directory Access Protocol server. The client terminal can include an IP telephone, a set
10 top box or a personal computer. The client terminal can also include an IP gateway, for converting voice data packets to voice signals and a telephone for receiving the voice signals. The graphical display can include a television screen or a computer screen display.

The present invention also features a method of monitoring a voice mail
15 message. The method includes sending an incoming telephone call addressed to a client terminal to a voice mail storage device and establishing a conference call between the client terminal and the voice mail storage device.

The method can include muting the conference call between the client terminal and the voice mail storage device, establishing a speech path between
20 the client terminal and the voice mail storage device or dropping the voice mail storage device from the conference.

The invention features still further a method of automatically updating an address book database. The method includes determining from an incoming telephone call the address of the incoming telephone call and searching a

lightweight directory access protocol server for information corresponding to the address of the incoming telephone call, retrieving from the lightweight directory access protocol server the information corresponding to the address of the incoming telephone call and downloading the retrieved information to an address book database.

The method can further include searching the address book database for information corresponding to the address of origin prior to searching the lightweight directory access protocol server. The lightweight directory access protocol server can be located within a data network.

The invention also features a client-server network for managing IP voice data packets. There is a client terminal for receiving IP voice data packets from a caller and a graphical display for conveying information to a client terminal user. A client terminal controller controls the client terminal and a terminal proxy server, responsive to internet protocol control data packets, sends a signal to the client terminal controller to notify a client terminal user of the incoming voice data packets. The client terminal controller, in response the terminal proxy server, retrieves information about the incoming caller and conveys the information to the client terminal user on the graphical display. A graphical user interface is provided for receiving instructions from the client terminal user. The client terminal controller, in response to the instructions received from the user through the graphical user interface, performs at least one call management task on the incoming voice data packets.

It is therefore an object of the present invention to provide a novel, effective client-server network for managing voice data packets.

An object of the invention having been stated hereinabove which is achieved in whole or in part by the present invention, other objects will become evident as the description proceeds when taken in connection with the accompanying drawings as best described hereinbelow.

5

Brief Description of the Drawings

Figure 1 is a schematic block diagram generally depicting the client server network for managing internet protocol voice data packets according to the present invention;

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Figure 2 is a block diagram, similar to Figure 1, in which a client terminal controller and an address book are integrated with the terminal proxy server;

Figure 3 is a block diagram, similar to Figure 2, in which a client terminal controller, a display, a graphical user interface and an address book are integrated into a client terminal;

15

Figure 4 is a more detailed block diagram of Figure 1 of an embodiment of the present invention in which a client terminal includes an internet protocol telephone and the client terminal controller is incorporated within a personal computer;

20

Figure 5 is a block diagram, similar to Figure 4, of another embodiment of the present invention in which the client terminal includes a television set top box and the display includes a television set;

Figure 6 is a block diagram, similar to Figure 4, of another embodiment of the present invention in which the client terminal includes an internet protocol gateway and a conventional telephone;

Figure 7 is a representation of the graphical user interface through which a user instructs the client terminal controller to manage incoming voice data packets according to the present invention;

Figure 8 is a representation, similar to Figure 7, of an address book address that can be automatically updated through a Lightweight Data Access Protocol server;

Figure 9 is a flow chart generally demonstrating the operation of the client server according to the present invention;

Figure 10 is a flow chart demonstrating the automatic address book updating according to the present invention; and

Figure 11 is a flow chart demonstrating the voice mail monitoring feature of the client-server network according to the present invention.

Detailed Description of the Invention

The network according to the present invention provides the user of an internet protocol telephony device the ability to originate, answer and manage telephone calls from a personal computer, automatically access a Lightweight Directory Access Protocol (LDAP) server to automatically update an address book database, and monitor and screen voice mail messages while they are being recorded, as well as interrupt voice mail messages to speak with the caller.

There is shown in Figure 1 a network generally designated **10** for managing voice packet data according to the present invention. Network **10** can generally include a call server **12**, for sending and receiving telephone calls to and from network **10**, and a terminal proxy server (TPS) **14** for controlling both call server

12 and a client terminal **16**. Client terminal **16** can include, for example, an internet protocol (IP) telephone, a cable television set top box having telephony capability, or a personal computer, each of which can communicate using internet protocol. Also included within network **10** is a client terminal controller **18** that communicates directly with TPS **14** to control and manage voice data packets, not shown, within network **10**. As will be readily apparent to those skilled in the art, TPS **14** is adapted to communicate with client terminals **16** having varying intelligence that operate on protocol types ranging from stimulus (least intelligent, e.g., stationary gateway) to functional (most intelligent, e.g., personal computer).

In communication with client terminal controller **18** is a graphical display **20** which graphically conveys information to a user through a graphical user interface **22** regarding an incoming call. Graphical user interface **22** receives instructions from a user for managing the incoming IP voice data packet telephone call. Graphical display **20**, for example, a computer monitor for a personal computer or a television screen used in conjunction with a television set top box, is coupled to an intelligent device (e.g., the personal computer or the set top box) thereby providing graphical user interface capability and permitting much more information to be conveyed to a user. This allows a user to effectively manage telephone calls without going to the telephone. Client terminal controller **18** is also in communication with a data network **24** such as the internet.

In operation, call server **12** receives an incoming telephone message, the call set-up signaling comprised of control data packets, and translates the message into H.323 protocol. The H.323 protocol message contains a directory number and an address number for TPS **14**. TPS **14** receives the H.323 protocol

message from call server **12** and translates the message to a suitable application protocol, such as, for example UNISTIM, available from Nortel Networks, Saint John Canada and MEGACO (Media Gateway Control Protocol), which is an industry standard protocol, available from the Internet Engineering Task Force (an industry cooperative) just to name a couple, which contains the address of client terminal **16** as well as other client terminals, not shown. At the same time that TPS **14** converts and sends the message to client terminal **16**, TPS **14** converts and sends a simultaneous message, typically in another protocol such as Remote Method Invocation (RMI), to client terminal controller **18**. The application protocols above are utilized merely to facilitate communication between TPS **14** and client terminal **16** and between TPS **14** and client terminal controller **18**, as will be readily apparent to those skilled in the art, and therefore should not be viewed as limitations to the present invention as any suitable application protocols, including vender specific protocols, can be utilized in accordance with this invention.

TPS **14** sends the converted protocol messages simultaneously so that client terminal **16** and client terminal controller **18** are synchronized; that is, there is no delay between the time when client terminal controller **18** receives the signal of an incoming call and when client terminal **16** receives the signal. In other words, as client terminal **16** indicates to a user that there is a telephone call, for example by ringing, client terminal controller **18** generates graphical user interface **22** such as a pop-up window which appears on graphical display **20** at the same time.

In response to the message from TPS **14** and based on sender information contained within the translated message (e.g., the sender's address), client

terminal controller **18** retrieves information about the caller, identifying the caller. The information retrieval can be accomplished by accessing the user's own address book database **21** or by querying a Lightweight Directory Access Protocol (LDAP) server **23** via data network **24**. The user can then manage the incoming
5 call, for example by answering the call (connecting the call to client terminal **16**), taking a message (connecting the call directly to a voice mail storage device **25** remote from client terminal **16**), taking a message and monitoring the message, or letting the phone ring until the caller is automatically placed into voice mail. The user can also answer the call, and place the new call or an existing call on hold,
10 or bypass voice mail and ignore the call (letting the incoming call ring with no answer.)

Client terminal controller **18** and address book database **21**, as shown in Figure 2, can be integrated with TPS **14** while display **20** and graphical user interface **22** are integrated with client terminal **16**. As shown in Figure 3, however,
15 client terminal controller **18**, display **20**, address book database **21** and graphical user interface **22** can all be integrated into client terminal **16**.

In one embodiment of the present invention, as shown in Figure 4, client terminal **16** can include an internet telephone set, for example an I2004 IP telephone available from Nortel Networks, Saint John, Canada, and client terminal
20 controller **18** can be stored within the memory of a personal computer **18a**. Display **20** comprises a computer screen that displays graphical user interface **22** which can, for example, be a window-based program so that the user can manage the incoming call, using a data input device such as keyboard **18a'** to communicate with graphical user interface **22**, as desired.

In another embodiment of the present invention, as shown in Figure 5, client terminal **16** can include a cable television set top box having telephony capability, and client terminal controller **18** is stored in memory within cable television set top box **16**. Set top box **16** is preferably of the type that enables
5 access to data network **24** such as the internet and that includes a data input device such as keyboard **16'**.

In still another embodiment of the present invention, as shown in Figure 6, client terminal **16** includes a stationary gateway **16a**, which converts conventional voice signals to IP voice data packets, and conventional telephone **16b**, such as
10 a touch tone or rotary dial phone.

An exemplary representation of graphical user interface **22** as displayed on display screen **20** is shown in Figure 7. For example, a user might be working with a desk top application on personal computer **18a** (Figure 4). When an incoming telephone call is detected (i.e., the control data packets), call server **12** (Figures
15 1 - 6) signals TPS **14** (Figures 1 - 6) which in turn signals client terminal controller **18** (Figures 1 - 6). In response, client terminal controller **18** generates graphical user interface **22** using the intelligence of personal computer **18a**, which pops up on display **20**. Graphical user interface **22** displays pop-up window **28a** which includes information **30a** such as the phone number of the incoming caller as well
20 as personal information **30b** which can be obtained from the user's address book database **21** stored within computer **18a** or from LDAP server **23** via data network **24**.

Once the user has been notified of the incoming call, the user can choose to perform one or more call management tasks on the incoming call by clicking

ANSWER **34a**, which connects the telephone call to client terminal **16** (Figures 1 - 6), TAKE MESSAGE **34b**, which connects the call to remote voice mail storage device **25** (Figures 1 - 6), or TAKE MESSAGE & MONITOR **34c**, which connects the call to voice mail storage device **25** and conferences the user into voice mail to monitor the message as it is being left by the caller.

Graphical user interface **22**, in response to client terminal controller **18**, also indicates the status of an incoming call. For example, if the user has placed an outgoing call, as indicated by window **28b**, the outgoing call can be placed on hold to take an incoming call (window **28c**) and the status of each call is indicated as HELD **36b** and ACTIVE **36c** within respective windows **28b** and **28c**.

Caller information **30a - 30d**, as shown in Figure 8, can automatically be retrieved from address book database **21** (Figures 1 - 6) when an incoming call is detected. Thus, the user can enter important information **30b**, for example personal caller information, such that screen pop-up comments immediately convey information to the user about the caller. Moreover, for first time callers for which no information exists within address book database **21**, the user can automatically update address book database **21** to add the caller's information such as information **30a**, name **30c**, and address **30d** retrieved from LDAP server **23** (Figures 1 - 6).

Referring now to Figure 9, the signaling operation of client-server network **10** will be described in greater detail. An incoming IP telephone call signal (a message comprised of a physical layer, an IP layer, a transmission control protocol layer and an application layer) is first detected by call server **12** (Figures 1 - 6), as described in Block **40**. Call server **12** translates the message to H.323

protocol and in turn signals TPS **14** (Figures 1 - 6). TPS **14**, in response to control data packets contained in the application layer, translates the message again, and simultaneously sends a UNISTIM protocol signal to client terminal **16** (Figures 1 - 6) and an RMI protocol signal to client terminal controller **18** (Figures 1 - 6), as described in Block **42**, to notify a user that there is an incoming telephone call.

Client terminal controller **18** determines the address, or phone number, of the incoming call from the application layer and queries address book database **21** (Figures 1 - 6), searching for information corresponding to the address detected. If no match is found, controller **18** queries LDAP server database **23** (Figures 1 - 6) via data network **24** (Figures 1 - 6), as described in Block **44**, to retrieve caller information, searching LDAP server **23** for information corresponding to the address of the incoming telephone call.

Still referring to Figure 9, client terminal controller **18**, via graphical user interface **22** (Figures 1 - 7), prompts the user to respond to the incoming call, as described in Block **46**. In response to the user's instructions, client terminal controller **18** instructs TPS **14** to connect the incoming call or not, as described in Block **48**. If the user chooses to connect the call (i.e., answer the call, send the call to voice mail or send call to voice mail and monitor voice mail), TPS **14** signals call server **12** to connect the call, as described in Block **50**, and TPS **14** signals client terminal **16** to stop notifying the user (e.g., stop phone from ringing), signals client terminal controller **18** of the status **36** (Figure 7) of the call and connects a voice path to client terminal **16** or voice mail storage device **25** (Figures 1 - 6), as described in Block **52**. If client terminal controller **18** signals TPS **14** not to connect, TPS **14** signals client terminal **16** to stop notifying the user and does not

signal call server **12** at all, as described in Block **54**.

As discussed above, client terminal controller **18** performs a query to address book database **21** when an incoming call is detected. If the caller's phone number is not found in address book database **21**, client terminal controller **18** sends a query to LDAP server **23** within data network **24**, as described in Block **44**, Figure 9. Referring now to Figure 10, client terminal controller **18** (Figures 1 - 6) receives a reply from LDAP server **23** (Figures 1 - 6) and displays the caller's information on display screen **20** (Figures 1 - 7) via graphical user interface **22** (Figures 1 - 7), as described in Block **56**. The user can then choose to update address book database **21** (Figures 1 - 7), as described in Block **58** by automatically downloading LDAP reply information into address book database **21**. If the user chooses to update address book database **21**, client terminal controller **18** downloads the new information into address book database **21** as described in block **60**. Once the new information has been added to address book database **21**, the user can manage the incoming telephone call as discussed above and as described in Block **46**, Figure 9.

As discussed above, voice mail storage device **25** (Figures 1 - 6) is typically remote from client terminal **16**. Thus, it typically is not possible to determine who is being sent to voice mail or what voice mail message is being left, thereby preventing call screening of the incoming call. While caller ID features make it possible to determine who is calling, it still has not been possible to monitor the message being left because voice mail storage device **25** is remote from the user. However, one aspect of the present invention permits a user to not only monitor the voice mail message in real time as it is being left, but further allows a

user to interrupt the messaging process to take the call.

As discussed above, client terminal controller **18** (Figures 1 - 6) prompts the user to manage the incoming call, as described in Block **46**, Figure 9. Referring now to Figure 11, the user chooses to send the call to voice mail storage device **25** (Figures 1 - 6) as described in Block **62** and client terminal controller **18** sends a signal to TPS **14** (Figures 1 - 6) to connect the call to voice mail, as described in Block **64**. TPS **14** connects a speech path to client terminal **16** (Figures 1 - 6) (e.g., an IP phone) and signals client terminal **16** to mute the call (so that the caller cannot hear the user monitoring the call), as described in Block **66**. A conference call is then established with voice mail storage device **25** (Figures 1 - 6) through call server **12** (Figures 1 - 6), as described in Block **68**, and TPS **14** joins the call as described in Block **70**. Once the user is conferenced into voice mail storage device **25**, the user monitors voice mail storage device **25** as described in Block **72**, thereby establishing a three way call between client terminal **16**, voice mail storage device **25** and the incoming call, and TPS **14** sends a signal to client terminal controller **18** to indicate the voice mail monitor status, as described in Block **74**. If the user, via graphical user interface **22** (Figures 1 - 6), chooses to answer the call, client terminal controller **18** sends a signal to TPS **14** to answer the call, as described in Block **74**, and TPS **14** sends a signal to call server **12** to drop voice mail storage device **25** from the conference, as described in Block **78**.

It will be understood that various details of the invention may be changed without departing from the scope of the invention. Furthermore, the foregoing description is for the purpose of illustration only, and not for the purpose of limitation--the invention being defined by the claims.

CLAIMS

What is claimed is:

- 1 1. A client-server network for managing internet protocol voice data
2 packets comprising:
 - 3 (a) a client terminal, for receiving internet protocol voice data
4 packets from a caller;
 - 5 (b) a graphical display, for conveying information to a client terminal
6 user;
 - 7 (c) a client terminal controller, for controlling the client terminal;
 - 8 (d) a terminal proxy server, responsive to internet protocol control
9 data packets, for sending synchronized signals to the client
10 terminal and the client terminal controller to notify a client
11 terminal user of the incoming voice data packets, the client
12 terminal controller, in response to a synchronized signal, adapted
13 to retrieve information about the incoming caller and convey the
14 information to the client terminal user on the graphical display;
15 and
 - 16 (e) a graphical user interface, for receiving instructions from a client
17 terminal user, the client terminal controller, in response to the
18 instructions received from the user through the graphical user
19 interface, adapted to perform at least one call management task
20 on the voice data packets.

- 1 2. The client-server network of claim 1 in which the call management task
2 includes connecting the voice data packets to one of the client terminal
3 and a voice mail storage device.

- 1 3. The client-server network of claim 1 further including a database and
2 wherein the client terminal controller is adapted to retrieve the
3 information from the database;

- 1 4. The client-server network of claim 3 in which the database comprises an
2 address book.

- 1 5. The client-server network of claim 4 in which the database comprises a
2 Lightweight Directory Access Protocol server.

- 1 6. The client-server network of claim 1 in which the client terminal
2 comprises an internet protocol telephone.

- 1 7. The client server network of claim 1 in which the client terminal
2 comprises a set top box.

- 1 8. The client server network of claim 7 in which the graphical display
2 comprises a television screen.

1 12. A method of monitoring an incoming voice mail message comprising the
2 steps of:

3 (a) sending an incoming telephone call addressed to a client
4 terminal to a voice mail storage device whereby an incoming
5 voice mail message is created; and

6 (b) establishing a conference call between the client terminal and the
7 voice mail storage device to monitor the incoming voice mail
8 message.

1 13. The method of monitoring an incoming voice mail message of claim 12
2 further comprising the step of muting the conference call between the
3 client terminal and the voice mail storage device.

1 14. The method of monitoring an incoming voice mail message of claim 12
2 further comprising the step of establishing a speech path between the
3 client terminal and the voice mail storage device.

1 15. The method of monitoring an incoming voice mail message of claim 12
2 further comprising the step of dropping the voice mail storage device
3 from the conference.

1 16. A method of automatically updating an address book database
2 comprising the steps of;
3 (a) determining the address of an incoming telephone call;
4 (b) searching a lightweight directory access protocol server for
5 information corresponding to the address of the incoming call;
6 (c) retrieving from the lightweight directory access protocol server
7 the information corresponding to the address of the incoming
8 call; and
9 (d) downloading the retrieved information to an address book
10 database.

1 17. The method of claim 16 further including the step of searching the
2 address book database for information corresponding to the address of
3 the incoming call prior to searching the lightweight directory access
4 protocol server.

1 18. The method of claim 16 in which the lightweight directory access
2 protocol server is located within a data network.

1 19. A client-server network for managing internet protocol voice data
2 packets comprising:

3 (a) a client terminal, for receiving internet protocol voice data
4 packets from a caller;

5 (b) a graphical display, for conveying information to a client terminal
6 user;

7 (c) a client terminal controller, for controlling the client terminal;

8 (d) a terminal proxy server, responsive to internet protocol control
9 data packets, for sending a signal to the client terminal controller
10 to notify a client terminal user of the incoming voice data packets,
11 the client terminal controller, in response to the signal, adapted
12 to retrieve information about the incoming caller and convey the
13 information to the client terminal user on the graphical display;
14 and

15 (e) a graphical user interface, for receiving instructions from a client
16 terminal user, the client terminal controller, in response to the
17 instructions received from the user through the graphical user
18 interface, adapted to perform at least one call management task
19 on the voice data packets.

Abstract of the Disclosure

A client-server network for managing internet protocol voice data packets includes a client terminal, for receiving internet protocol voice data packets; a graphical display, for conveying information to a client terminal user;

5 a client terminal controller, for controlling the client terminal; a terminal proxy server, responsive to the internet protocol voice data packets, for sending synchronized signals to the client terminal and the client terminal controller to notify a client terminal user of the voice data packets, the client terminal controller, in response to the synchronized signal, adapted to retrieve

10 information about the incoming caller and convey the information to the client terminal user on the graphical display; and a graphical user interface, displayed on the graphical display, for receiving instructions from the client terminal user, the client terminal controller, in response to instructions received from the user through the graphical user interface, adapted to perform at least

15 one data manipulation task on the voice data packets.

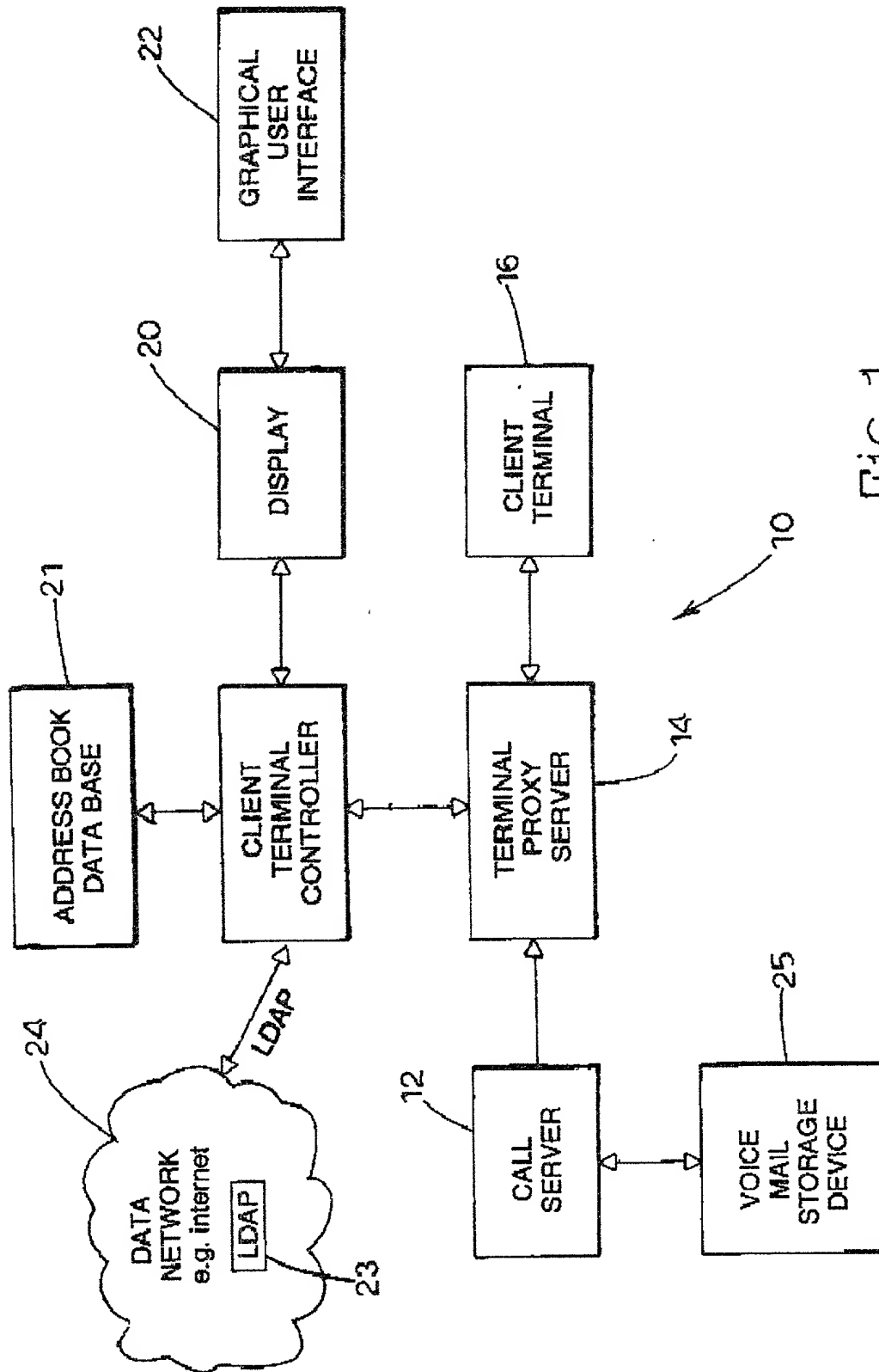


Fig.1

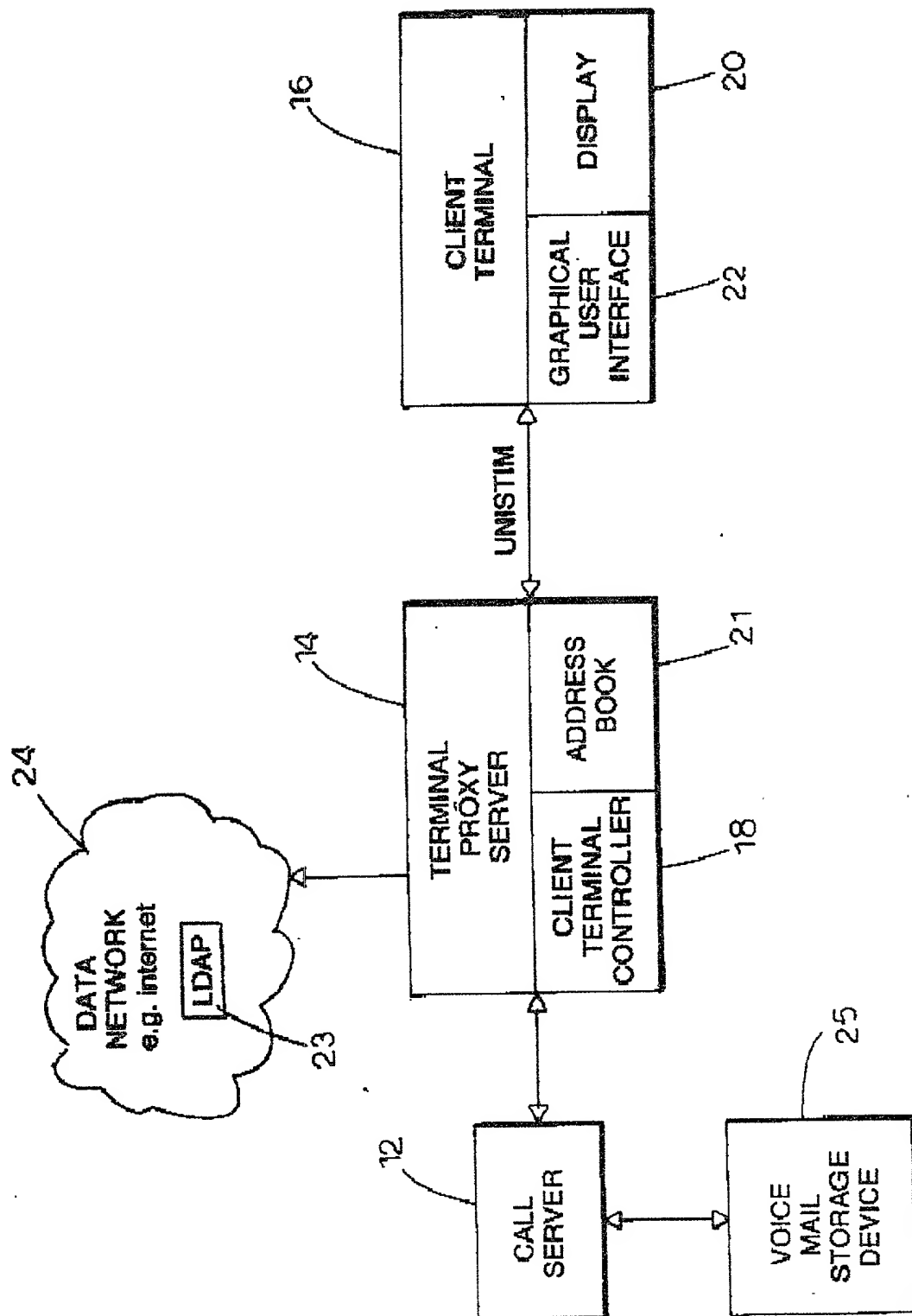


Fig. 2

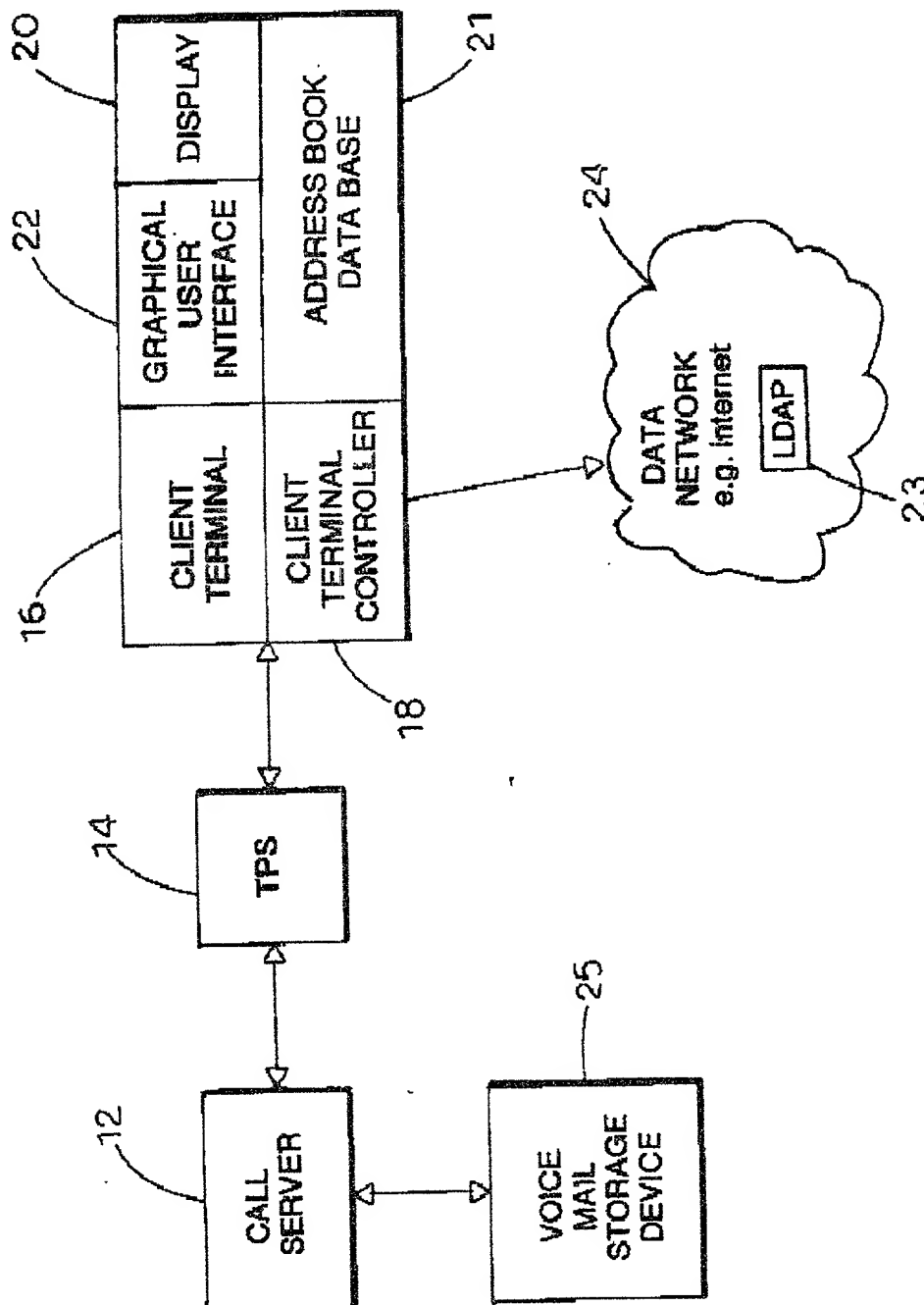


Fig. 3

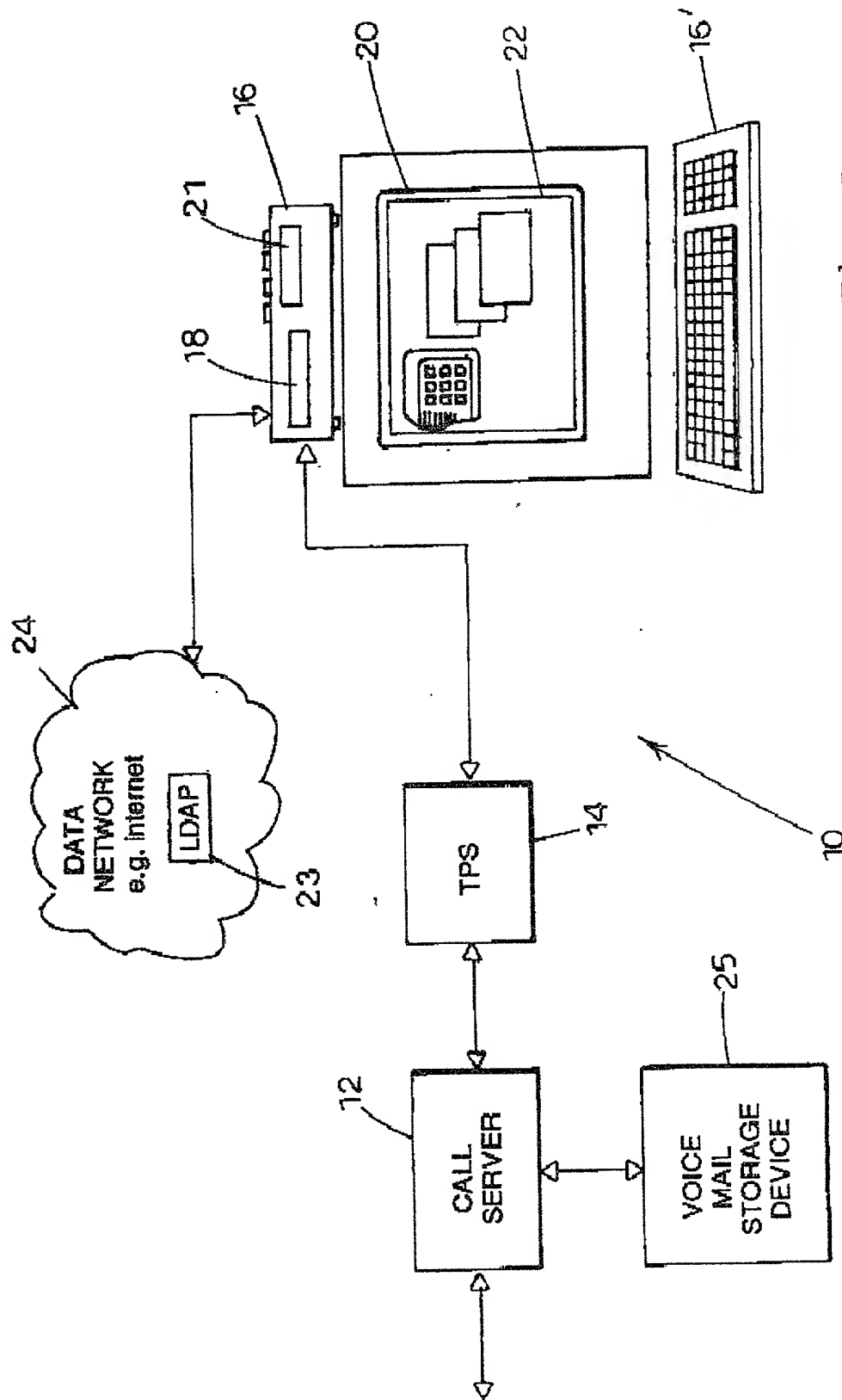


Fig.5

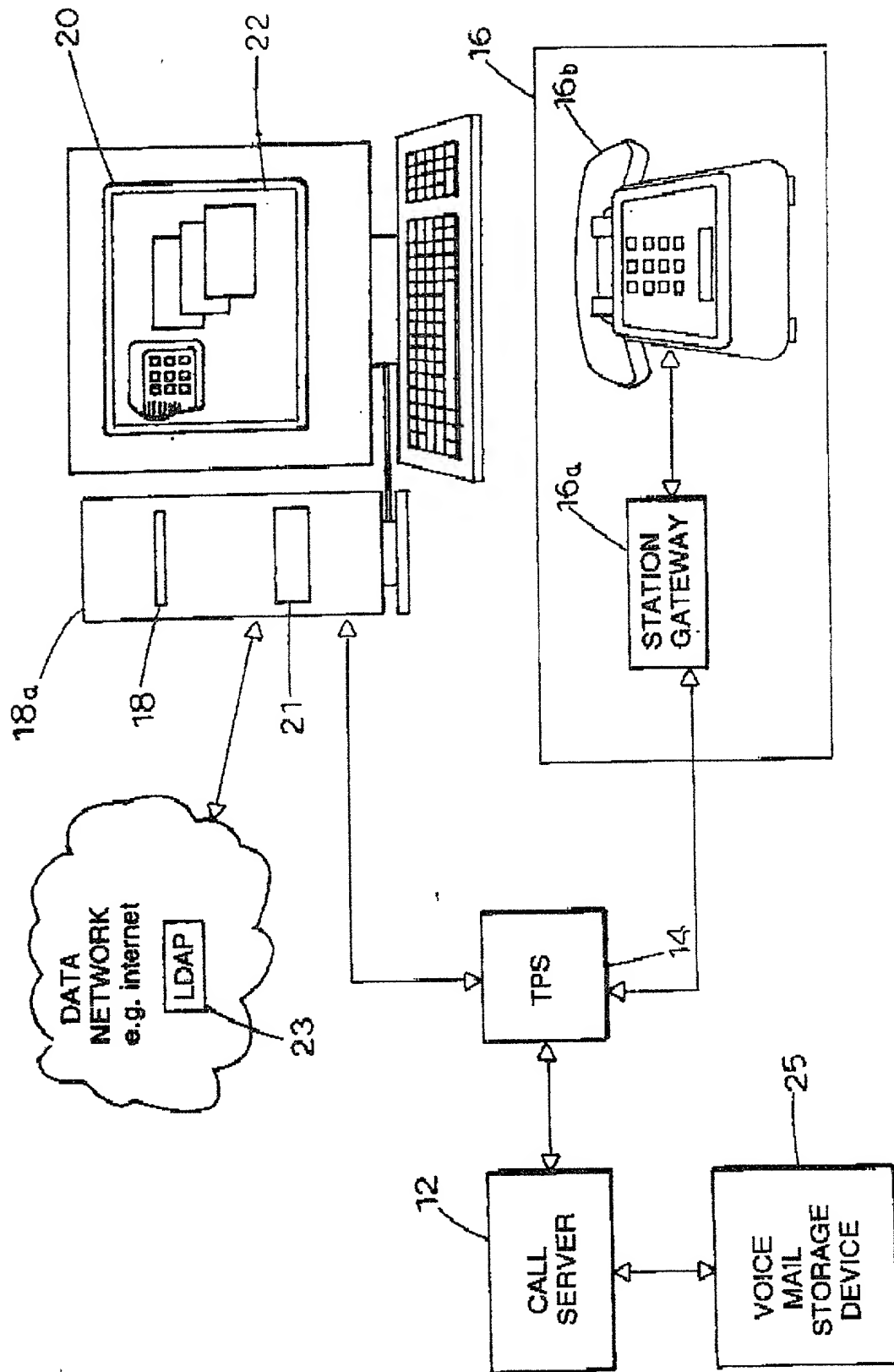


Fig.6

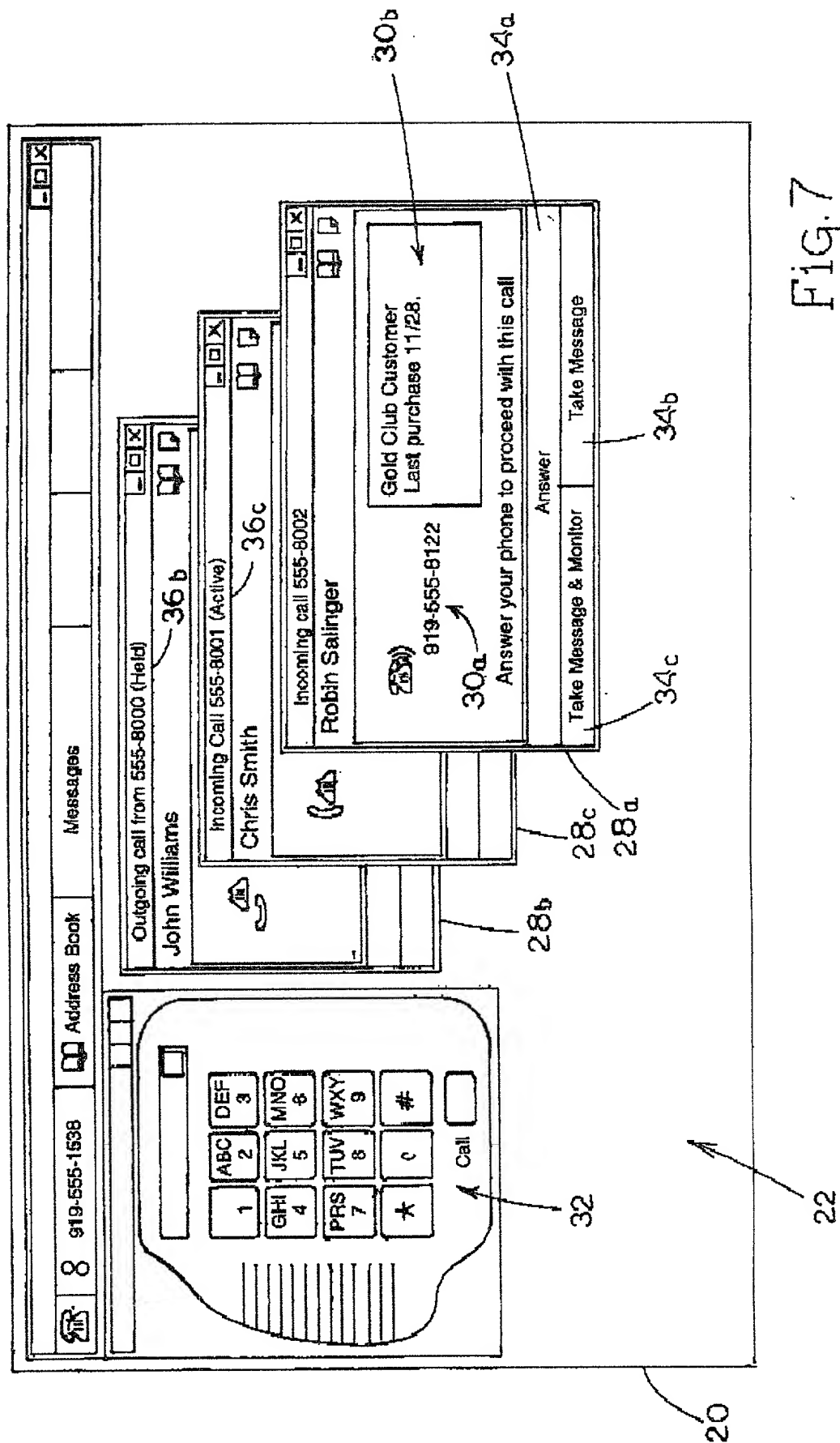


FIG. 7

30a

New Contract

New Contact

555-1234

555-4321

555-0000

J. SMITH @

555-1111

555-8888

30c

NAME FIRST JOHN LAST SMITH

HOME STREET PO BOX 1

30d

ABC STREET

ANYTOWN NC 12345

XYZ COMPANY

SCREEN COMMENTS

VIP OF SALES; ALWAYS TAKE CALL

30b

Fig.8

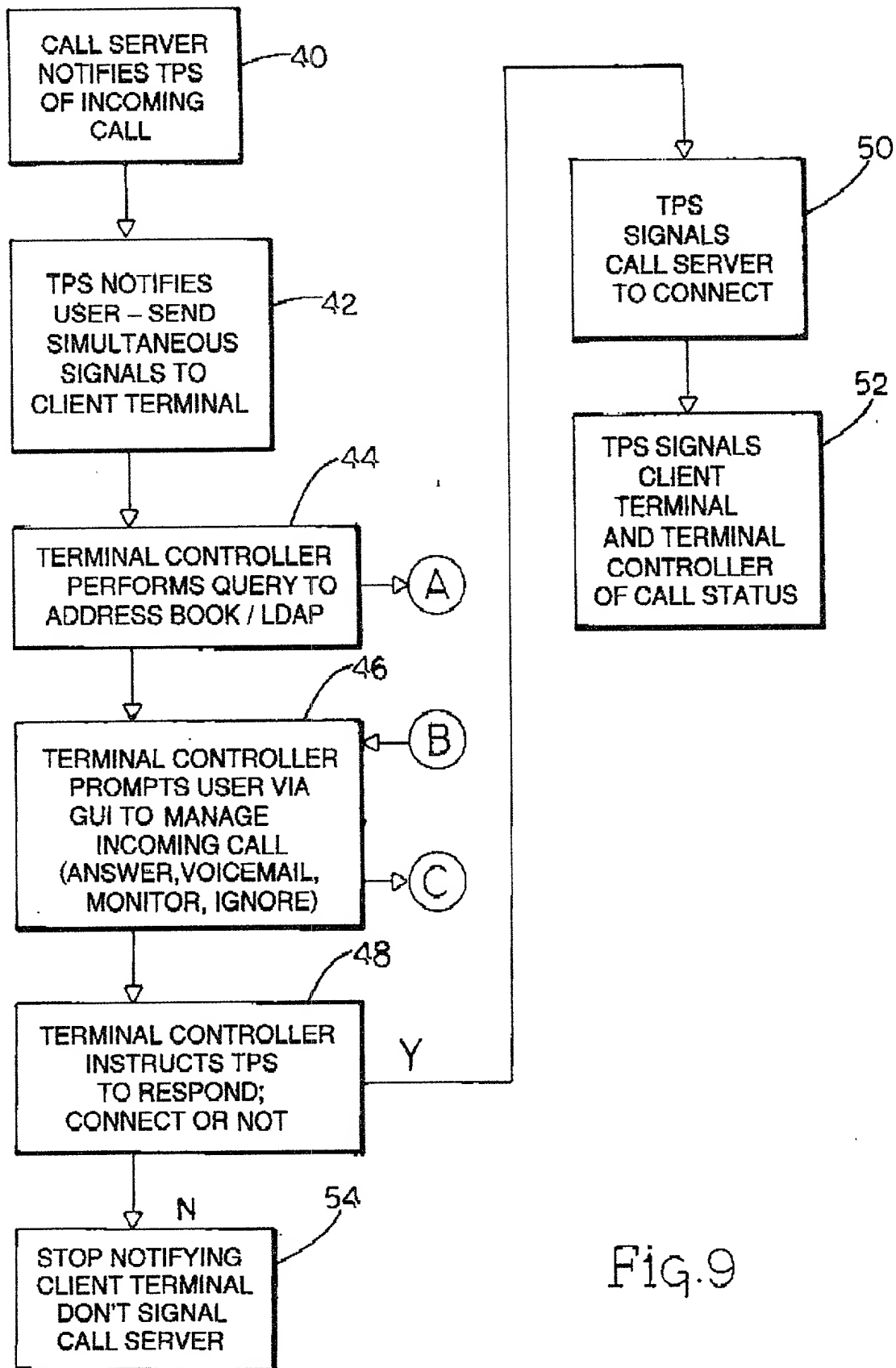


Fig.9

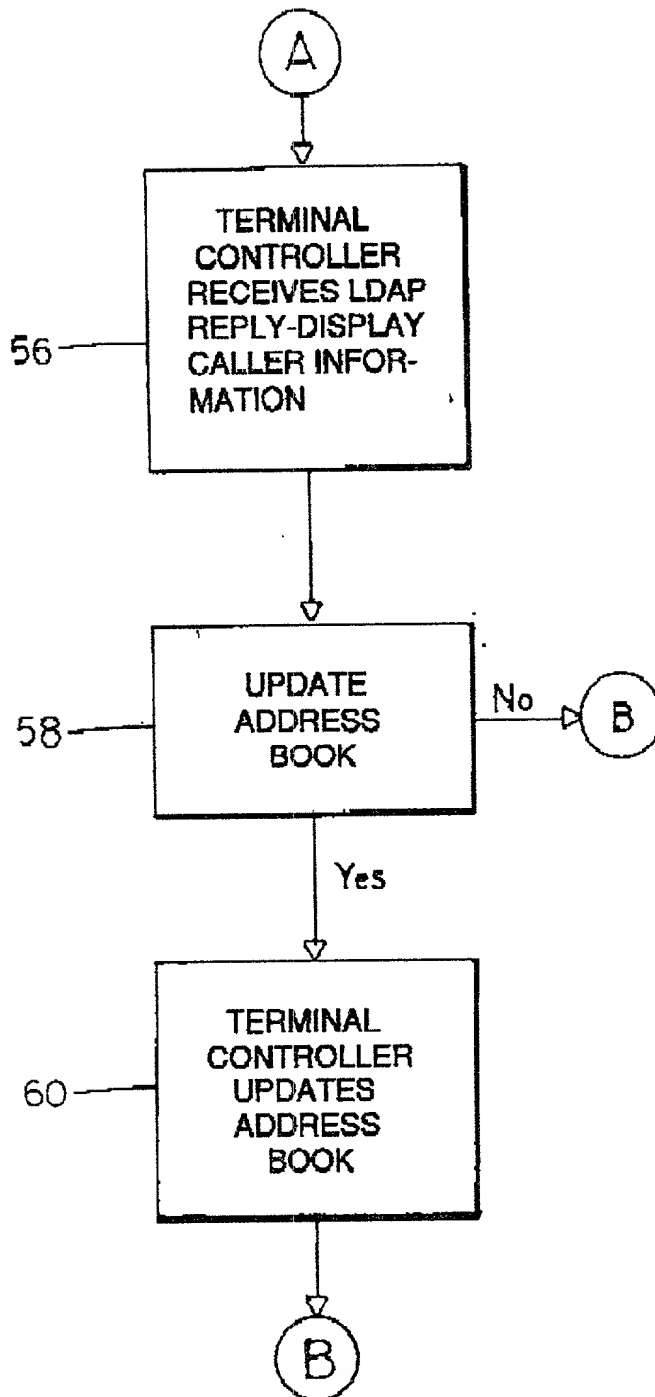


Fig.10

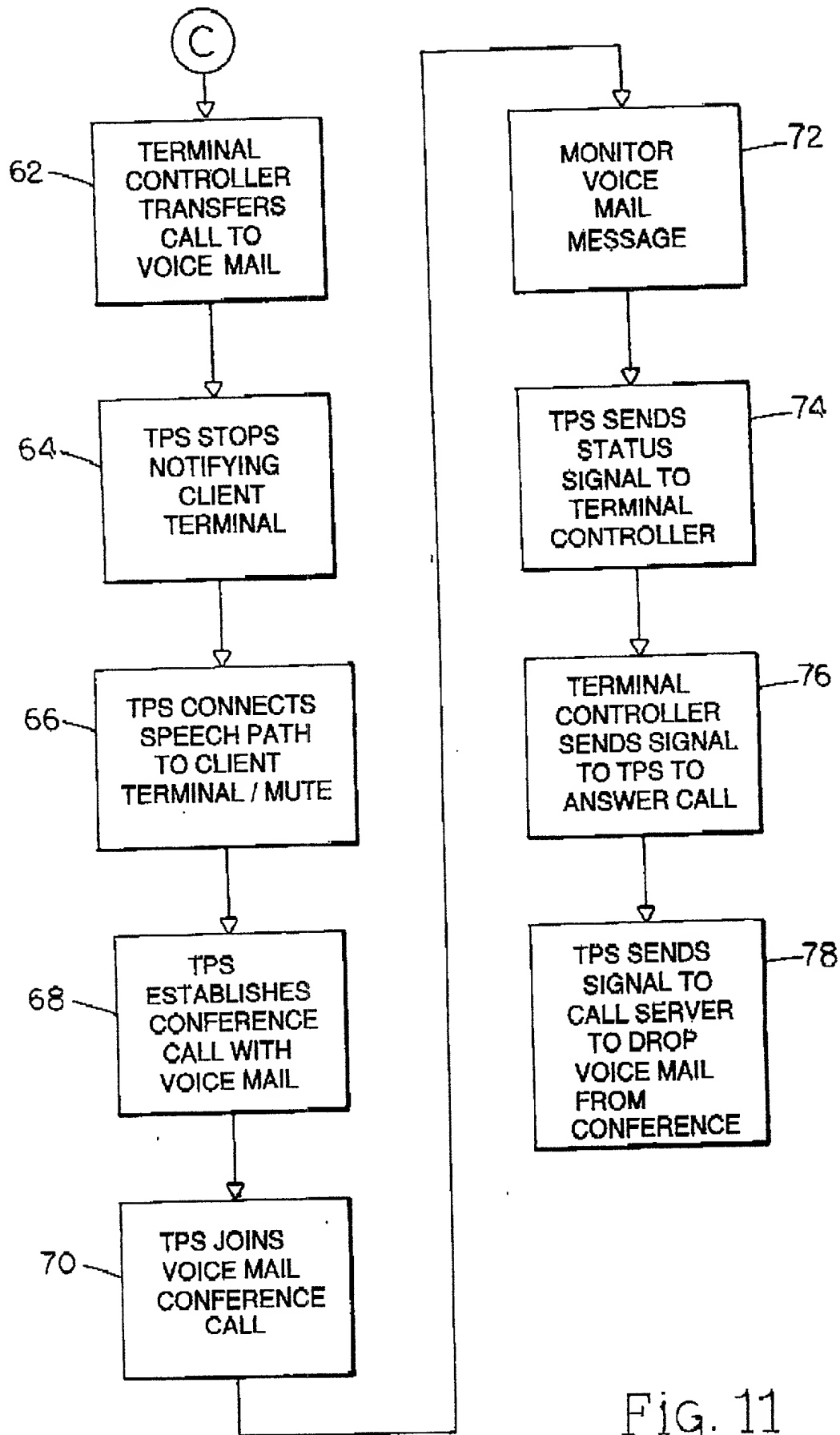


Fig. 11

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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)	Attorney Docket Number	1273/16
	First Named Inventor	Fobert et al.
	COMPLETE IF KNOWN	
	Application Number	Not Assigned
	Filing Date	Herewith
	Group Art Unit	Not Assigned
	Examiner Name	Not Assigned

☒ Declaration Submitted with Initial Filing OR ☐ Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled.

A CLIENT-SERVER NETWORK FOR MANAGING INTERNET PROTOCOL VOICE PACKETS

the specification of which (Title of the Invention)

☒ is attached hereto
OR

☐ was filed on (MM/DD/YYYY) [] as United States Application Number or PCT International

Application Number [] and was amended on (MM/DD/YYYY) [] (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 356(b) of any foreign application(s) for patent or inventor's certificate, or 356(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

[Page 1 of 2]

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I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet PTO/SB/02C attached hereto.

As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

☐ Customer Number

OR

☒ Registered practitioner(s) name/registration number listed below

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Name	Registration Number	Name	Registration Number
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Richard E. Jenkins	28,428	Gregory A. Hunt	41,085
Arles A. Taylor, Jr.	39,395	David P. Gloekler	41,037

☒ Additional registered practitioner(s) named on supplemental Registered Practitioner Information sheet PTO/SB/02C attached hereto.

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Fax	919-419-0383		

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

Given Name (first and middle (if any))	Family Name or Surname
Joseph	Fobert

Inventor's Signature	<i>Joseph Fobert</i>		Date	12/15/99	
Residence City	Chapel Hill	State	NC	Country	USA
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Post Office Address					
City	Chapel Hill	State	NC	ZIP	27514
Country					

☒ Additional inventors are being named on the 1 supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto

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ADDITIONAL INVENTOR(S)
Supplemental Sheet
Page 1 of 1

Name of Additional Joint Inventor, if any:				<input type="checkbox"/> A petition has been filed for this unsigned inventor			
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Inventor's Signature				Date		12-15-99	
Residence: City		Durham		State		NC	
		Country		USA		Citizenship	
						Canadian	
Post Office Address 3606 Longridge Road							
Post Office Address							
City		Durham		State		NC	
		ZIP		27703		Country	
Name of Additional Joint Inventor, if any:				<input type="checkbox"/> A petition has been filed for this unsigned inventor			
Given Name (first and middle [if any])				Family Name or Surname			
Patrick James				Dagert			
Inventor's Signature				Date		12-15-99	
Residence: City		Raleigh		State		NC	
		Country		USA		Citizenship	
						Canadian	
Post Office Address 1904 North Hills Drive							
Post Office Address							
City		Raleigh		State		NC	
		ZIP		27612		Country	
Name of Additional Joint Inventor, if any:				<input type="checkbox"/> A petition has been filed for this unsigned inventor			
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Steve John				McKinnon			
Inventor's Signature				Date		12/14/99	
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		Country		USA		Citizenship	
						Canadian	
Post Office Address 115 Monarch Way							
Post Office Address							
City		Cary		State		NC	
		ZIP		27511		Country	

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